

BUFFALO

“BEST BUILT”

Paper Makers' and Brewers' Pumps

BULLETIN No. 269

Buffalo Steam Pump Company

BUFFALO, N. Y., U. S. A.

**Manufacturers of Steam, Power and Centrifugal
Pumping Machinery, Vacuum Pumps and Con-
densers of Every Description For All Requirements**

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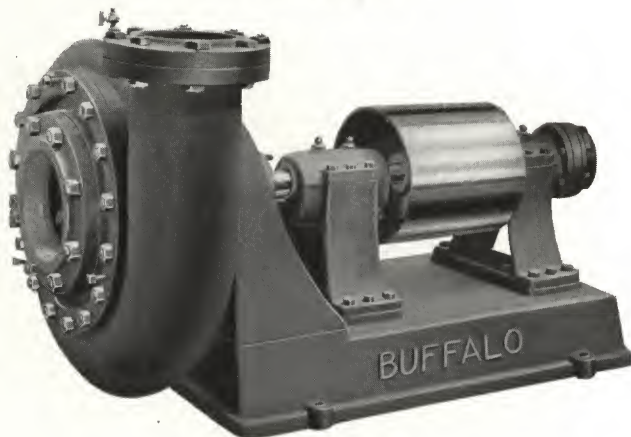


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Belted, Paper Pulp Pump

Fig. 940

Companion flanges are furnished only on openings 6" or smaller in size.

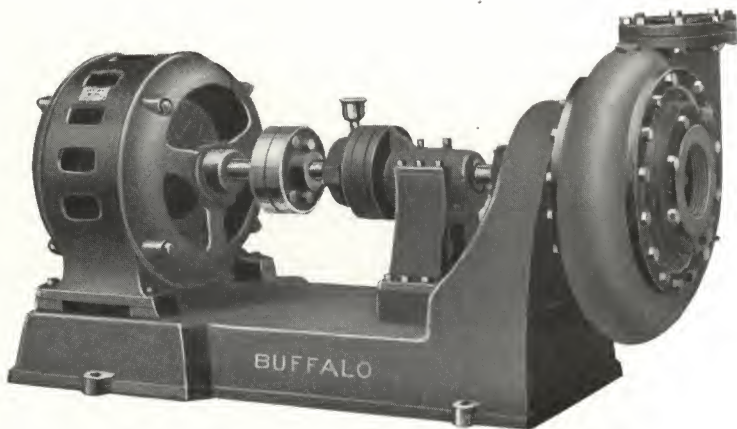


Fig. 941

An extra charge is made for arranging pumps for direct connection to motors.



B U F F A L O P U M P S

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Buffalo Paper Makers' and Brewers' Pumps

These pumps are primarily designed to handle ground wood stock and while some of our customers are using them on mixed stock, part wood and part rag, the pumps are not regularly offered for use on rag stock.

Continued test in actual service in many of the largest paper and sulphite fiber mills in the country have vindicated beyond doubt the success and desirability of the proper designed enclosed impeller pump for this work in preference to the old style, crudely designed, open type impeller or "fan" pump heretofore used. The enclosed impeller pump is vastly more efficient, heats not at all under continued service, requires less repairs and is practically the same price or less expensive when these advantages are considered.

Every feature of these pumps is of heavy duty design and many mills who have from fifteen to twenty of these outfits are enjoying the freedom from trouble and repair expense experienced previously with the old style pumps.

They are adaptable to use on ground wood stock varying from a fraction of a percent to 4%. Some of our customers report success in handling 5% to 6% stock, but we recommend more water with the stock.

1%	Ground Wood Stock	contains	0.083	lbs.	stock	per	gallon.
2%	"	"	"	"	.166	"	"
3%	"	"	"	"	.25	"	"
4%	"	"	"	"	.33	"	"

Capacity rating in gallons for the various size pumps as published in the tabular list of sizes, is recommended as maximum for not exceeding about 2% stock. If the stock is thicker, it must be handled at a lower velocity. In other words, use next size larger pump, which when operated at a somewhat slower speed will handle the required capacity of thicker stock. On 2½ to 4% stock it is desirable thus to reduce the ratings on the pumps from 30 to 50% of their maximum capacity as listed for thin stock to secure results.



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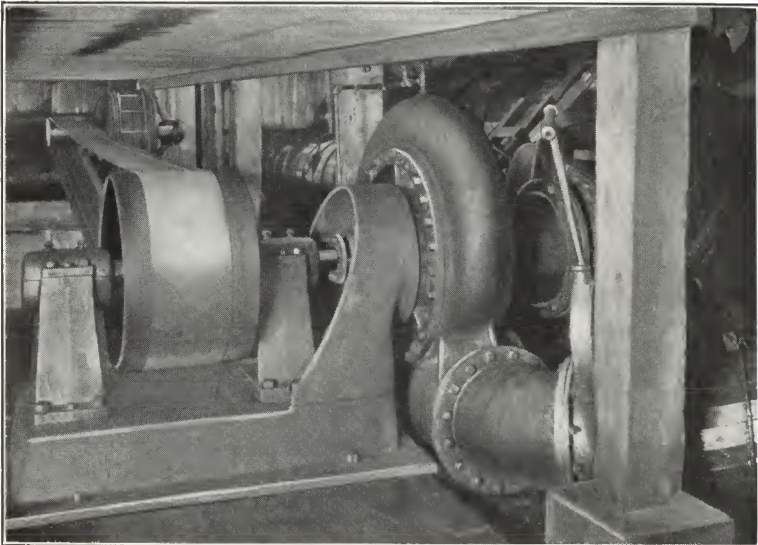


Buffalo Paper Makers' and Brewers' Pumps

Pumping efficiency varies with size pump, pumping head and percentage of stock and capacity being handled, from 35% with small pump, low head and thick stock to 45% with the same conditions but thinner stock; to 60% with large pump, say 80 to 90 feet head and 3% stock to 65% efficiency with the same conditions but thinner stock.

Owing to the pipe friction varying with the percentage of stock being handled the pumping head for an installation is liable to vary considerably. To have sufficient margin, it is customary on direct connected pumps or outfits belted direct from individual motor drive to order pump for somewhat higher head than normal (advising us normal and maximum heads desired) and choosing motors of ample size to operate pumps under the overload conditions brought about by an increased capacity being discharged under a decreased head requiring more power.

These pumps are also used to handle beet sugar pulp, strained sewage, etc.





Buffalo Paper Makers' and Brewers' Pumps

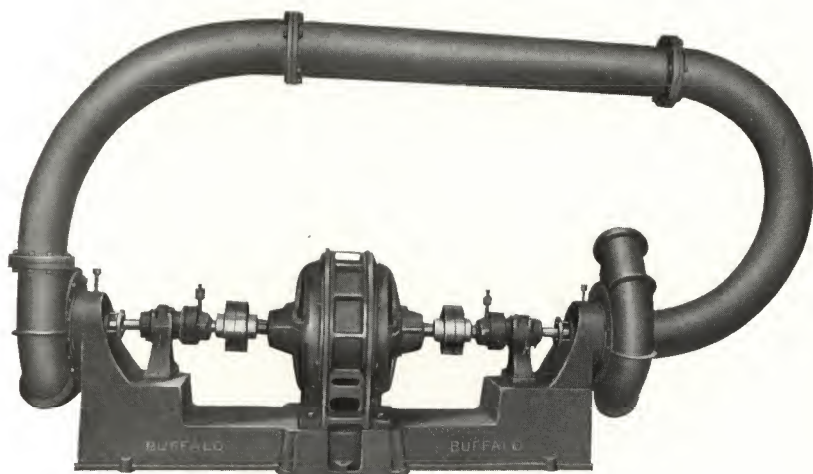


Fig. 979

8-inch Two-stage Motor-driven Paper Maker's Pump.

Occasionally the requirements of head or available or desirable motor speed make it necessary to use two-stage construction to fill requirements.

Speed Table for Fig. 940 Paper Makers' Pumps.

Size of Pump	Gallons per Minute	R. P. M. FOR TOTAL PUMPING HEADS, 10' to 100'.																		
		10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	60'	65'	70'	75'	80'	85'	90'	95'	100'
4"	500	700	775	850	920	980	1050	1100	1185	1220	1270	1320	1370	1410	1460	1495	1530	1560	1590	1620
5"	700	460	525	590	650	700	750	800	845	885	920	955	990	1015	1045	1070	1090	1110	1135	1150
6"	1000	440	500	570	630	680	735	780	825	865	905	940	970	1000	1030	1050	1075	1100	1120	1135
8"	1800	380	430	480	520	570	600	640	675	705	735	760	785	805	825	845	860	880	890	900
10"	2800	350	400	440	480	520	560	595	630	660	690	715	735	760	775	790	800	810	815	820
12"	4000	310	350	390	430	465	500	530	560	590	615	640	660	680	700	710	720	730	740	750

Above speeds are for the capacity shown in second column, and are for belted pumps which are provided with maximum diameter impellers to give minimum speeds. Direct connected pumps may be operated at somewhat higher speeds by using special impellers.



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Buffalo Paper Makers' and Brewers' Pumps

Construction of these pumps is clearly shown by the sectional view herewith. When pump is direct connected to electric motor, the thrust bearing is located on the pedestal bearing between pump and flange coupling.

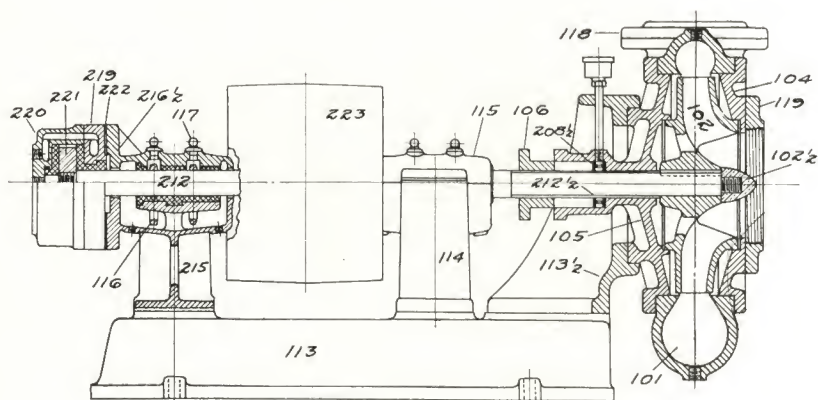


Fig. 982

Sectional View of Paper Makers' Pump.

- | | | | |
|---------|-----------------------|---------|-------------------------|
| 101 | Shell. | 222 | Adjusting Shims. |
| 102 | Impeller. | 113 | Base. |
| 102 1/2 | Impeller Nut. | 113 1/2 | Hood. |
| 208 1/2 | Grease Ring. | 114 | Inboard Bearing Stand. |
| 212 | Shaft. | 115 | Inboard Bearing Cap. |
| 212 1/2 | Shaft Sleeve. | 215 | Outboard Bearing Stand. |
| 104 | Suction Side Plate. | 216 1/2 | Outboard Bearing Cap. |
| 105 | Stuff Box Side Plate. | 116 | Oil Ring. |
| 106 | Shaft Gland. | 117 | Oil Plug. |
| 219 | Thrust Bearing. | 118 | Discharge Flange. |
| 220 | Thrust Cover. | 119 | Suction Flange. |
| 221 | Thrust Plate. | 223 | Pulley. |



BUFFALO PUMPS

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Buffalo Paper Makers' and Brewers' Pumps

Shells Good for 100 Feet Pressure

SPECIFICATIONS

Shell and Side-Plates	Heavy grey cast iron, machined to gauge, drilling to template.
Runner	Regularly of cast iron (bronze, special) type shown in Fig. 939.
Shaft	Open hearth machine steel accurately finished all over. Shaft is brass covered through pump and stuffing boxes only, as steel shaft operates better in bearings.
Bearings	Ring-oiling, especially designed for high speed, bearing surfaces of genuine babbit metal peined and scraped. Oil gauges furnished on the bearings. Thrust supported by marine collar bearing on outer pedestal bearing, provided with water cooling connections for emergency use.
Stuffing Boxes	Extra deep.
Glands	Cast iron, allowing ample packing space.
Oil Cups, etc.	Furnished.
Finish	All pumps thoroughly coated inside with anti-rust paint before assembly, and painted, filled and rubbed down outside, with final finishing coat. Bright parts exposed to weather protected by slushing compound during shipment.
Special Pumps	At special prices built to suit customers' specifications.

END SUCTION TYPE

Size Pump	Pipe Sizes		Capacity Gallons per Minute	Diam. x Face Pulley	Weight Pulley Pump	Regular Pump with Iron Runner	Regular Pump with Bronze Runner	All Brass Pump
	Suction	Discharge						

This list similar to Fig. 940. Speeds on Page 70.
Shells designed for 43 pounds maximum pressure.

4	5	4	500	12 x 10	800	Mkecs	Mkenz	Mkfe:
5	6	5	700	15 x 12	1,025	Mkegh	Mkerm	Mkfs
6	8	6	1,000	15 x 12	1,200	Mkeht	Mkevb	Mkfst
8	10	8	1,800	18 x 12	2,300	Mkejn	Mkevr	Mkfuv
10	12	10	2,800	20 x 12	3,500	Mkelj	Mkezk	Mkfya
12	14	12	4,000	22 x 16	4,500	Mkemd	Mkfap	Mkgar

All pumps have double ring-oiling bearings, extra deep gland and stuffing-box throat. Shafts are of open hearth steel, brass covered within pump and through gland only, as steel shaft operates better in bearings. Grease cup provided to lubricate gland packing. Direct connected pumps are offered with flange couplings only.



Buffalo Single Cylinder Double Acting Power Pump

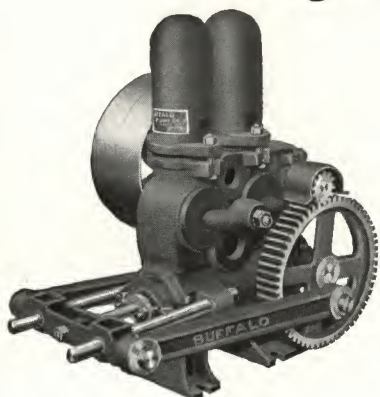


Figure 401
Size 4 x 4

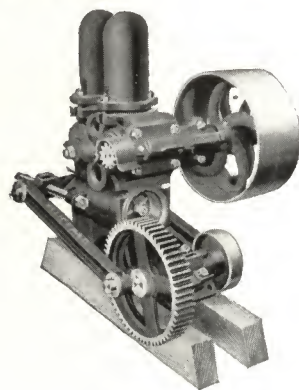


Figure 402
Showing Pump opened ready to
re-pack piston.

The power pump illustrated is a distinct departure from the older competing designs now on the market. It will be noted that both the suction and discharge openings are above the cylinder and because the suction valves are above the water piston the water contained cannot leak out when the pump is stopped. In other words the pump **always stays primed** and will immediately pick up its suction after a long period of rest because the cup leathers will not have dried out. This design is by far the best for handling water through long suction pipes and for the greatest convenience of operation. Two large air chambers are provided directly above the discharge valves where they are doubly effective and as they are readily detached the discharge valves are easily accessible. The suction valves are reached through two cover plates both of which may be taken off by removing **one** nut.

Should it become necessary to replace the cup leathers in the piston it is not necessary to dismantle the entire pump as with competition pumps. It is simply necessary to loosen four bolts, pull the cylinder head off, turn the pump shaft over once and the piston is before you for repacking.

METAL TO METAL ground joint between head carrying crankshaft bearing and the main cylinder casting, giving absolutely accurate alignment.

Pump cylinders are brass lined, valves, valve seats and gland are brass; piston rods are brass fitted.

All bearings are lined with high grade babbitt and provided with large grease pockets with hinged covers.

Suction and discharge openings are provided on **both** sides of the pump.

Size	Gals. per Revolution	Crankshaft Speed Revolutions Minute	Capacity Gallons Minute	For Elevation To	H. P. Required to Pump Against 175 Ft. Head	T & L Pulleys Size	Suction Pipe	Discharge Pipe	Weight Pounds	List Price	Code Word
3 x 4	0.25	45	11.8	175 ft.	1.2	12x3	1½"	1"	280	\$50.00	Lkalb
4 x 4	0.43	45	19.3	175 ft.	1.7	15x3	2"	1½"	325	60.00	Lkang
5 x 5	0.85	40	34.0	175 ft.	2.3	18x3	2½"	2"	550	85.00	Lkard
6 x 6	1.47	40	58.0	175 ft.	3.7	20x4	3"	2½"	700	100.00	Lkast
6 x 12	2.94	35	103.0	175 ft.	6.1	26x4	4"	3"	925	175.00	Lkatz

All pumps geared 5 to 1; i. e., pulleys run five times as fast as crankshaft.
All gears and pinions are machine cut from the solid.